EDUCATION SCIENCE CENTRE KAMPALA

SCIENCE EDUCATION CENTRE KAMPALA

"MAKING SCIENCES PASSABLE"

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ULSCE SCIENCE BOOSTER PACKAGE 2024

CHEMISTRY PAPER 1

545/1

SET 4

2HOURS

Name:.....

Signature .....

Random number						personal number		

INSTRUCTIONS TO CANDIDATES.

- This paper consists of two sections **A** and **B**.
- Answer all the items in section A on the spaces provided.
- Section **B** has **two** parts **I** and **II**. Answer **one** item from each part.
- Answer **four** items in all.
- Any additional item(s) answered will not be scored.

FOR EXAMINER'S USE ONLY

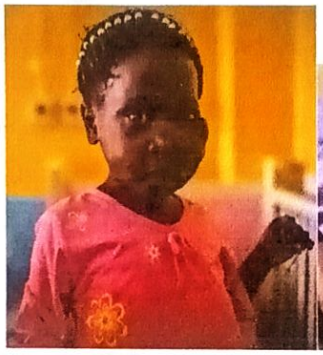
SECTIONS	SCORE	EXAMINER
A		
B		
Total score		

SECTION A

Answer ***all*** items in this section

Item 1

In most communities signals for television and radio waves have greatly improved but there is a challenge of few cancer screening facilities. The improvement is attributed to the telecom companies building masks which Musungu to a large extent believes is the cause of rising cases of cancer. However before he pursues his intention of taking the companies to courts of law Musungu wants to understand better the product of the masks and why the cancer screening facilities are few.



Task

(a) Help Musungu understand the categories of products from the masks and those in the medical field

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(b) Explain to Musungu how the products work.

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(c) Advise Musungu on the long term use of the products.

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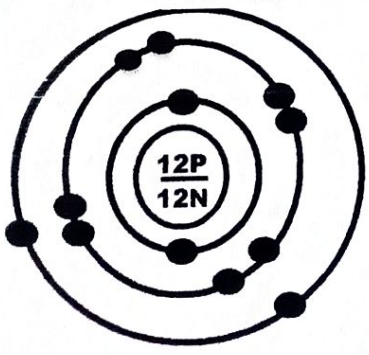
Item 2

Okello while checking on his son's chemistry notes, found drawing of structures that resembled what he studied about planets while in P.7. He wondered how this becomes chemistry and not geography. He invited his son to clearly explain to him what the drawings meant, their component and properties.

A



B

Task

As a learner of chemistry help Okello's son;

(a) explain to his father what the structures mean

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(b) state the components in the structures and their properties.

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(c) give advice to Okello on the likely uses of the substances **A** and **B**

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(d) state the effect on the environment of long term use of substance A

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SECTION B

PART1

Answer only ***one*** item from this part

Item 3

Strong basement of a stored building requires the use of iron bars and concrete of appropriate strength to support the weight and avoid collapsing. Low density aluminium is largely used to make lifts, door and window frames. Most of the materials are available in the local market except aluminium which is imported and quite expensive. The ores of aluminium are available in Karamoja district and an investor wants to set up an aluminiumm extraction industry to support the economy. The LC.V chairperson has welcomed the idea and through a radio talk show wants the investor to sensitize his people on how the mineral can be produced, the impact of the industry and social benefit.

Task

As a chemistry learner make a write up of the presentation the investor is expected to deliver on the radio talk show.

Item 4

Lake Katwe in western Uganda has deposits of a material that can be industrially converted to a product for making a detergent

Fat + sodium hydroxide $\longrightarrow$ soap + glycerol

Soap is on high demand but the local communities lack sufficient knowledge of how to produce the alkali for soap manufacturers and asked to be sensitized.

Task

Using your knowledge of chemistry, make a write up of how the product can be manufactured including the impact and benefits of the manufacturing process.

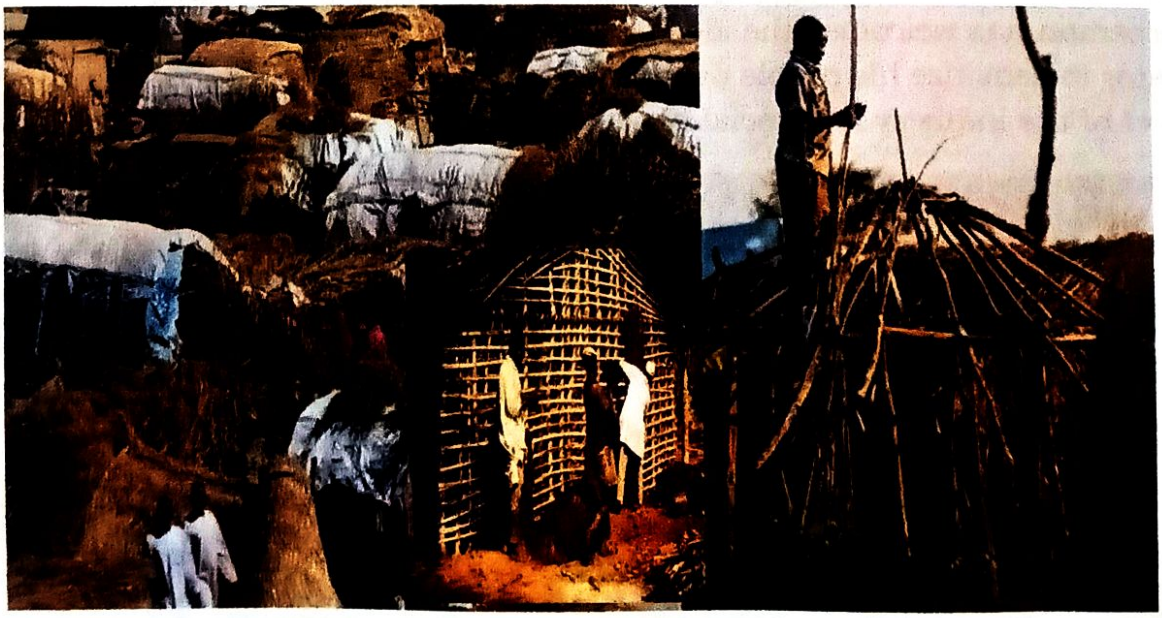
SECTION B

PART II

Answer only ***one*** item from this part

Item 5

A nongovernmental organization dealing with the impact of refugees on the hosting communities in West Nile region, observed a number of challenges that impacted negatively on the natural resources. The refugees carried out activities such as grazing, cultivation, cutting down trees for firewood and charcoal, brick making, moulding soil for houses, cutting grass for mud and wattle houses, brewing alcohol and many others. The environment was noisy, dusty with generally poor sanitation, malaria was quite common and poor harvests as the soils are left bear and eroded.



The poor handling of natural resources has caused total environmental degradation and the NGO has organized awareness talk shows to solve the challenges.

Task

As a student of chemistry make a write up of the awareness the NGO officials are expected to present to the refugees and the hosting population.

Item 6

Fishing is a major economic activity in most waters of Uganda. The fisher men use a variety of methods including local herbs and undersize nets for catching fish. Some of the boat engines are old and pour oil in the water. Chemicals like detergents are released directly in the water including some human wastes. Factories around the water showers release hot water and sewage into the water bodies. This has prompted the government to strictly oversee the activity and ensure fish is not contaminated and there is market for it abroad. The head of the unit plans to sensitize the fishermen.

Task

As a chemistry learner help the head of the unit to sensitize the fishermen about the natural resource, how to harvest them, their contribution and impact.

END